WHAT IS CLAIMED IS:

1. A ballast for operating a lamp comprising:

an inverter circuit configured to generate a control signal;

a resonant circuit, configured for operational coupling to the inverter circuit and to the lamp to generate resonant voltage in response to receiving the control signal;

a clamping circuit , operationally coupled to the resonant circuit, to limit the voltage across the resonant circuit;

a multiplier circuit, operationally coupled to the resonant circuit to boost the voltage clamped by the clamping circuit to a value sufficient to permit starting of the lamp; and

a pulsing circuit including:

a power controller to pulse the inverter "ON" and "OFF," and

a charge pump circuit to operate the power controller, the charge pump circuit operationally coupled to the clamping circuit to derive electrical power.

2. The ballast according to claim 1, wherein the clamping circuit includes:

a first clamping capacitor;

a second clamping capacitor operationally connected in parallel to the first clamping capacitor; and

a pair of clamping diodes, operationally connected in series to each other and between a voltage conductor and a common conductor, wherein each clamping diode is operationally connected across an associated capacitor to prevent the voltage across the associated capacitor from changing sign.

3. The ballast according to claim 2, wherein the charge pump circuit includes:

an electrolytic capacitor to accumulate a charge and supply power to the power controller; and

a diode, operationally connected in series with the electrolytic capacitor and the second clamping capacitor, the diode and the second clamping capacitor cooperate to facilitate charging of the second clamping capacitor a first half of a cycle and discharging the second clamping capacitor through the electrolytic capacitor a second half of the cycle.

4. The ballast according to claim 3, wherein sourcing the electrolytic capacitor from the second capacitor prevents a substantial change in a value of a current flowing in the charge pump circuit.

5. The ballast according to claim 4, wherein the value of the current flowing in the charge pump circuit fluctuates no more than 30% from a value of a steady state current when the lamp is in one of an open circuit and a short circuit mode.

6. The ballast according to claim 3, wherein the charge pump circuit further includes a Zener diode, operationally connected across the electrolytic capacitor to limit the voltage of the charge pump circuit to a predetermined value.

7. The ballast according to claim 6, wherein sourcing the electrolytic capacitor from the second capacitor protects the Zener diode from overheating when the lamp is removed.

8. The ballast according to claim 1, wherein the inverter includes:

a first switch;

a second switch operationally connected in series with the first switch; and

control circuits, each including an associated control inductor , the control circuits cooperate to turn the first switch "ON" for a first half of a cycle and the second switch "ON" for a second half of the cycle.

9. The ballast according to claim 8, wherein the power controller includes a primary inductor, operationally coupled with the control inductors to pulse the inverter "ON" and "OFF."

10. The ballast according to claim 1, wherein the lamp is a high intensity discharge lamp.

11. A ballast for operating a lamp comprising:

a resonant circuit incorporating lamp connections and including a resonant inductance and a resonant capacitance;

an inverter circuit operationally coupled to the resonant circuit for inducing an AC current in the resonant circuit, the inverter circuit including:

first and second switches serially connected between a bus conductor at a DC voltage and a reference conductor, and being connected together at a common node, through which the AC load current flows, and

a gate drive circuitry for controlling the corresponding first and second switches, the gate drive circuitry including corresponding inductors;

a clamping circuit, operationally coupled to the resonant circuit and configured to limit a voltage generated by the resonant circuit to a value which is substantially safe for components of the ballast;

a multiplier circuit operationally connected across terminals to boost an output voltage of the inverter to a value sufficient to ignite the lamp; and

a pulsing circuit which includes:

a pump charge circuit, and

a control circuit, the pump charge circuit and the control circuit cooperate to pulse the inverter "ON" and "OFF" for a predetermined time each cycle.

12. The ballast according to claim 11, wherein the pump charge circuit is powered by the clamping circuit.

13. The ballast according to claim 11, wherein the clamping circuit includes:

a first capacitor;

a second capacitor; and

two connected in series diodes, each diode is operationally connected across an associated first and second capacitors.

14. The ballast according to claim 13, wherein the pump charge circuit includes:

an electrolytic capacitor, through which power is supplied to the control circuit, and

a diode connected in series with the electrolytic capacitor and the second capacitor, wherein

the clamping circuit and the diode cooperate to charge the second capacitor during a first half of a cycle and discharge the second capacitor through the electrolytic capacitor during a second half of the cycle.

15. The ballast according to claim 14, the pump charge circuit further including:

a Zener diode connected across the electrolytic capacitor to limit voltage of the control circuit.

16. The ballast according to claim 15, wherein sourcing of the pump charge circuit by the second capacitor protects the Zener diode from overheating.

17. The ballast according to claim 11, wherein the clamping circuit and pump charge circuit cooperate to supply power for the control circuit.

18. The ballast according to claim 11, wherein the control circuit includes a primary inductor operationally coupled to the inductors of the inverter to control an operation of the inverter.